

monary complaints. Tourists who like to leave the beaten track, and seekers after a refuge from an English winter, will be attracted to Biskra if they read Mr. Pease's little book.

Practical Photo-Micrography. By Andrew Pringle. (London: Iliffe and Son, 1894.)

WORKERS in this fascinating branch of science will no doubt be well acquainted with the author's large treatise, a book which is suitable, more especially, for those who wish to devote themselves very considerably to this kind of work, and to enter into all the details connected with it. The publication of the present book will not appeal so much to the interest of this class of readers, but will be welcomed more by those who wish to get a good working idea of photo-micrography. With this intention this manual has been kept within very reasonable limits, is decidedly explicit, and thoroughly practical. In the seventeen chapters the reader is led through all the manipulations, from the choice of instruments to suit his purse, kinds of plates to use, colour treatment of objects, and general photographic procedure, &c., to those dealing with good hints on lantern-slides, cover-glass preparations, and section cutting and staining. The text is accompanied with numerous well-chosen illustrations, and the get-up of the book is all that could be desired. It may interest our readers to know that in the above pages we are informed that no apparatus is recommended on hearsay, or is any statement made or step suggested "outside the knowledge and practice of the writer."

Twelve Charts of the Tidal Streams on the West Coast of Scotland. By F. Howard Collins. Small folio. (London: J. D. Potter, 1894.)

MR. COLLINS has elaborated the work of the Hydrographic Office by producing a set of charts showing the direction of the tidal streams on the west coast of Scotland at intervals of one hour from the time of high water at Greenock. The twelve charts are prefaced by a note describing how they should be used, and a tide-table. The sources of his information are duly acknowledged, and the work was carried out with the assistance of Captain Wharton, the hydrographer. The work is similar in scope and method to the atlas of tides in the North Sea by the same author. It is a serious defect that no method has been adopted for distinguishing the velocity of the tidal streams, or at least of indicating the furious tidal races which occur in many channels and off many headlands. So far as the direction of the streams is concerned, this compact set of charts should be useful to yachtsmen, and is not without interest for oceanographers.

LETTERS TO THE EDITOR.

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On Some Methods in Meteorology.

Is it not a *desideratum* in our rainfall records that they should give, with the amount of rain, not mere rain-days (or days' rain), but the exact time (or as near an approximation to that as possible), during which rain has fallen? This might at least, surely, be expected from our observatories and better equipped stations. Some of our continental neighbours are before us in this respect. Thus, the Geneva record, for more than thirty years, has contained as one of its items, "hours of rain." May we not then ask why an institution like that at Greenwich, goes on giving the number of days on which rain fell; a momentary sprinkle being thus put in the same category with an incessant downpour of twenty-four hours?

NO. 1292, VOL. 50]

One might here remark on the great fulness of detail and excellence of arrangement in records of the weather at various continental stations (*e.g.* Pola); which are apt to lead us into invidious comparisons.

With regard to measurement of bright sunshine, the burning-glass method leaves much to be desired from a scientific point of view, and the photographic method seems likely to supplant it increasingly. But might not the concentrated rays be got to produce some other physical effect (metal-expansion?) than burning paper, yielding a more exact record of the amount of sunshine?

Again, may it not be said that the graphic method is far too little utilised in meteorology? Probably nine persons out of ten would agree that they apprehend a truth of statistical nature, a numerical variation, much better every way—more quickly, more clearly, more retentively—through a graphic curve, than through a column of figures, or a verbal description. Yet we have only to turn over the pages of our meteorological publications (and others dealing with figures) to see that this method is used very sparingly. And it is easy to pick out cases where the want of it is felt very plainly. I can recall one such case in a valuable paper by one of our ablest meteorologists (Dr. Buchan), published a short time ago in the Scottish Society's *Journal*, on mean temperature in the neighbourhood of London during 130 years. Here we find paragraph after paragraph, over several pages, describing how certain smoothed values of temperature had varied, now above, now below the line of average. This imposes a considerable strain on the imagination, proves, I am afraid, somewhat tedious reading, and leaves, perhaps, no very distinct impression after all. A simple diagram, giving the curves themselves, would here be an effective labour-saving contrivance, both to the author and his readers.

But to multiply diagrams means great expense, it will naturally be urged. Now the cost of a well-finished diagram (and we all like such) is no doubt considerable. But with the aid of photography diagrams can now be reproduced very cheaply; and it seems to me open to consideration whether we might not do well to sacrifice a little fineness and finish, for the sake of a freer and more frequent use of the method, and the greater clearness of comprehension which that would ensure. Moreover, such diagrams are not to be regarded as a mere addition, and therefore requiring more space; they may even mean an economy of words and space. There are frequent cases in which it is not necessary to give all the figures involved; the object being merely to point out a relation, the salient features of a curve. And if the diagram can be relied upon for accuracy, little need be said about it, in some cases; it tells its own tale. Then again, the photographic reproduction of an author's diagram may even prove a gain in accuracy; some intermediate perils are avoided. I believe, in fine, that the graphic method has a great future before it, not only in science, but in other domains; and the sooner we set about developing its capabilities to the utmost, the better.

A. B. M.

Magnetism of Rock Pinnacles.

IT is well known that the Riffelhorn powerfully affects the compass, and the like has been observed on other peaks in Switzerland; but I have never seen any record of similar observations in this country.

Four years ago, on a visit to the Lizard, accident drew attention to a strong influence on the compass exhibited by a crag on the moors near Kynance. I have taken the opportunity of a visit this year to ascertain whether that were a solitary case. I find that such influence, though not general, is by no means uncommon. Most of the rocks in which it was observed were serpentine; it occurred also in hornblende schist; there were no sufficient opportunities of testing the other rocks of the district. The influence was exhibited only in rather prominent crags, but among them often in lower adjacent blocks, as well as in the absolute summits. At a few yards' distance it was always imperceptible.

I saw no traces in any case of the crag having been struck by lightning. This was the only point to which I gave attention; but it would be natural also to inquire if all kinds of rock can possess the property, if wet or weather affects it, and if it be temporary or permanent.

I used a common pocket compass, taking the bearings of some distant object, first a few feet off, then in four surrounding positions as near as the compass could be held to the stone I

was testing. The effects varied from no deviation or slight, to cases where the needle swung completely round while still a foot or two away. Among the strongest noted were some crags north of Kynance Cove, and some on a headland about a quarter of a mile south of Coverack, both consisting of serpentine. Any one whose holidays take him to a rocky neighbourhood, may find interest in carrying out similar observations.

Cockfield, July 28.

E. HILL.

The Aurora Australis.

THE following report of a brilliant Aurora, seen in the Indian Ocean, will be interesting to many of your readers:—

THE AURORA AUSTRALIS.—When sailing along the Indian Ocean from the Cape of Good Hope to Australia, and in about the vicinity of St. Paul's Island, longitude $76^{\circ} 17'$ east, latitude $4^{\circ} 1' 22''$ south, an Aurora Australis of remarkable grandeur was seen by those on board the ship *Isle of Arran*. Describing it yesterday, Captain Carse said his chief officer and he had a beautiful view of the phenomenon on two nights (April 28 and 29). It was a very fine sight, the streams of light in spraylike form shooting upward for fully thirty degrees, lighting up with wonderful brightness the whole southern part of the heavens. Some very bad weather was experienced by the ship in the locality of St. Paul's. High confused seas prevailed with a strange continuance of easterly winds.—*Herald*, May 23.

No report was received that this was seen in any part of Australia, and I have seen no report that the brilliant Aurora seen in the northern hemisphere on March 30 was seen in this part of the world.

H. C. RUSSELL.

P.S.—I got position and date from Captain Carse.

Absence of Butterflies.

THE most common butterflies—as, for instance, *Pieris Brassicae*, *Colias Rhamni*, *Vanessa Urticae*—were very rare hereabouts this spring too (*cf.* NATURE, vol. I. p. 225), and the same has been observed at Frankfort-on-Maine. As for *Pieris*, this scarcity might have been predicted with certainty last autumn, as, here and at Frankfort, the cabbage-plants in fields and gardens were almost exempt from their usual ravagers, the caterpillars of the said species. If the extraordinary dryness of last year's summer should be connected with these facts, it cannot have acted through the damage done to the food-plants, but must have operated more directly upon the insects themselves.

D. WETTERHAN.

Freiburg, July 28.

A STRANGE LIGHT ON MARS.

SINCE the arrangements for circulating telegraphic information on astronomical subjects was inaugurated, Dr. Krueger, who is in charge of the Central Bureau at Kiel, certainly has not favoured his correspondents with a stranger telegram than the one which he flashed over the world on Monday afternoon:—

“Projection lumineuse dans région australe du terminateur de Mars observée par Javelle 28 Juillet 16 heures Perrotin.”

This relates to an observation made at the famous Nice Observatory, of which M. Perrotin is the Director, by M. Javelle, who is already well known for his careful work. The news therefore must be accepted seriously, and, as it may be imagined, details are anxiously awaited; on Monday and Tuesday nights, unfortunately, the weather in London was not favourable for observation, so whether the light continues or not is not known.

It would appear that the luminous projection is not a light outside the disc of Mars, but in the region of the planet not lighted up by the sun at the time of observation. The gibbosity of the planet is pretty considerable at the present time. Had there been evidence that the light was outside the disc, the strange appearance might be due to a comet in the same line of sight as the planet. If we assume the light to be on the planet itself, then it must either have a physical or human origin; so

it is to be expected that the old idea that the Martians are signalling to us will be revived. Of physical origins we can only think of Aurora (which is not improbable, only bearing in mind the precise locality named, but distinctly improbable unless we assume that in Mars the phenomenon is much more intense than with us), a long range of high snow-capped hills, and forest fires burning over a large area.

Without favouring the signalling idea before we know more of the observation, it may be stated that a better time for signalling could scarcely be chosen, for Mars being now a morning star, means that the opposition, when no part of its dark surface will be visible, is some time off.

The Martians, of course, find it much easier to see the dark side of the earth than we do to see the dark side of Mars, and whatever may be the explanation of the appearances which three astronomers of reputation have thought proper to telegraph over the world, it is worth while pointing out that forest fires over large areas may be the first distinctive thing observed on either planet from the other besides the fixed surface markings.

THE INTERNATIONAL GEOLOGICAL CONGRESS.

THE sixth meeting of this Congress will be held at Zurich, commencing on August 29. The Congress was founded at Philadelphia in 1876, the first meeting being held at Paris in 1878; subsequent meetings have been—Bologna, 1881; Berlin, 1885; London, 1888; Washington, 1891. As one result of discussions at the Paris meeting, committees were appointed in different countries to draw up reports on classification, nomenclature, &c. At Bologna these reports were received and discussed, the greater part of the time being thus spent. An additional committee was then appointed to prepare a geological map of Europe; this work is still in progress, but the committees on nomenclature, &c., have practically lapsed, and but little attention has been paid to such subjects at the more recent meetings. At the Washington Congress a committee was appointed to report on the Bibliography of Geology. Lists of bibliographies for each country were to be prepared, and printed in the report of the Washington meeting; but the volume has recently appeared without such lists. It is hoped that the committee will submit a report on this important subject at Zurich.

Prof. E. Renevier, of Lausanne, is nominated President of the Zurich meeting. He has been an active member of the Congress from the commencement, and the excellent arrangements for the forthcoming meeting are no doubt largely due to his powers of organisation. Prof. A. Heim, of Zurich, is Vice-President; Prof. H. Golliez, of Lausanne, is Secretary; M. C. Escher-Hess, of Zurich, is Treasurer. This apparently exhausts the list of officers of the organising committee, democratic Switzerland dispensing with “president of honour,” “honorary members of committee,” &c., which have largely figured in the lists of previous Congresses, even in that of Washington. Not having such honorary lists upon which to draw for funds, the subscription for membership is double that previously charged, but is even now only 25 francs.

The arrangements made for the Zurich meeting differ somewhat from those of previous sessions. There will be no formal discussion on nomenclature, classification, &c.; but, after transacting general business, the Congress will divide into three sections, meeting simultaneously. The subjects for discussion will be: (1) General and Tectonic Geology; (2) Stratigraphy and Palæontology; (3) Mineralogy and Petrography. Amongst the papers